```
                    RAW SEQUENCE LISTING              DATE: 02/16/2001
                    PATENT APPLICATION: US/09/762,261 TIME: 09:39:05

                    Input Set : A:\5001hjus.app
                    Output Set: N:\CRF3\02162001\I762261.raw
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   3 <110> APPLICANT: Quinnan, Gerald V.
   4        Zhang, Peng Fei
   5        Henry M. Jackson Foundation
   7 <120> TITLE OF INVENTION: Expression and Characterization of HIV-1 Envelope
   8        Protein Associated with a Broadly Reactive Neutralizing
   9        Antibody Response
  11 <130> FILE REFERENCE: 44508-5001-US
C--> 13 <140> CURRENT APPLICATION NUMBER: US/09/762,261
C--> 14 <141> CURRENT FILING DATE: 2001-02-05
  16 <150> PRIOR APPLICATION NUMBER: US 60/095,267
  17 <151> PRIOR FILING DATE: 1998-08-04
  19 <150> PRIOR APPLICATION NUMBER: PCT/US99/17596
  20 <151> PRIOR FILING DATE: 1999-08-04
  22 <160> NUMBER OF SEQ ID NOS: 4
  24 <170> SOFTWARE: PatentIn Ver. 2.1
  26 <210> SEQ ID NO: 1
  27 <211> LENGTH: 866
  28 <212> TYPE: PRT
  29 <213> ORGANISM: Human immunodeficiency virus type 1
  31 <220> FEATURE:
  32 <223> OTHER INFORMATION: R2 strain envelope protein (gp 160)
  34 <400> SEQUENCE: 1
  35    Met Arg Val Lys Gly Ile Arg Arg Asn Tyr Gln His Trp Trp Gly Trp
  36     1               5                   10                  15
  38    Gly Thr Met Leu Leu Gly Leu Leu Met Ile Cys Ser Ala Thr Glu Lys
  39                    20                  25                  30
  41    Leu Trp Val Thr Val Tyr Tyr Gly Val Pro Val Trp Lys Glu Ala Thr
  42                35                  40                  45
  44    Thr Thr Leu Phe Cys Ala Ser Asp Ala Lys Ala Tyr Asp Thr Glu Ala
  45         50                  55                  60
  47    His Asn Val Trp Ala Thr His Ala Cys Val Pro Thr Asp Pro Asn Pro
  48     65                  70                  75                  80
  50    Gln Glu Val Glu Leu Val Asn Val Thr Glu Asn Phe Asn Met Trp Lys
  51                    85                  90                  95
  53    Asn Asn Met Val Glu Gln Met His Glu Asp Ile Ile Ser Leu Trp Asp
  54                    100                 105                 110
  56    Gln Ser Leu Lys Pro Cys Val Lys Leu Thr Pro Leu Cys Val Thr Leu
  57                115                 120                 125
  59    Asn Cys Thr Asp Leu Arg Asn Thr Thr Asn Thr Asn Asn Ser Thr Asp
  60         130                 135                 140
  62    Asn Asn Asn Ser Asn Ser Glu Gly Thr Ile Lys Gly Gly Glu Met Lys
  63    145                 150                 155                 160
  65    Asn Cys Ser Phe Asn Ile Ala Thr Ser Ile Gly Asp Lys Met Gln Lys
  66                    165                 170                 175
  68    Glu Tyr Ala Leu Leu Tyr Lys Leu Asp Ile Glu Pro Ile Asp Asn Asp
  69                    180                 185                 190
  71    Asn Thr Ser Tyr Arg Leu Ile Ser Cys Asn Thr Ser Val Ile Thr Gln
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72              195                 200                 205
74    Ala Cys Pro Lys Ile Ser Phe Glu Pro Ile Pro Ile His Tyr Cys Ala
75        210                 215                 220
77    Pro Ala Gly Phe Ala Ile Leu Lys Cys Asn Asp Lys Lys Phe Ser Gly
78    225                 230                 235                 240
80    Lys Gly Ser Cys Lys Asn Val Ser Thr Val Gln Cys Thr His Gly Ile
81                245                 250                 255
83    Arg Pro Val Val Ser Thr Gln Leu Leu Leu Asn Gly Ser Leu Ala Glu
84            260                 265                 270
86    Glu Glu Val Val Ile Arg Ser Glu Asn Phe Thr Asn Asn Ala Lys Thr
87            275                 280                 285
89    Ile Ile Val Gln Leu Arg Glu Pro Val Lys Ile Asn Cys Ser Arg Pro
90        290                 295                 300
92    Asn Asn Asn Thr Arg Lys Ser Ile Pro Met Gly Pro Gly Arg Ala Phe
93    305                 310                 315                 320
95    Tyr Thr Thr Gly Gln Ile Ile Gly Asp Ile Arg Gln Ala His Cys Asn
96                325                 330                 335
98    Ile Ser Lys Thr Asn Trp Thr Asn Ala Leu Lys Gln Val Val Glu Lys
99                340                 345                 350
101   Leu Gly Glu Gln Phe Asn Lys Thr Lys Ile Val Phe Thr Asn Ser Ser
102           355                 360                 365
104   Gly Gly Asp Pro Glu Ile Val Thr His Ser Phe Asn Cys Ala Gly Glu
105       370                 375                 380
107   Phe Phe Tyr Cys Asn Thr Thr Gln Leu Phe Asp Ser Ile Trp Asn Ser
108   385                 390                 395                 400
110   Glu Asn Gly Thr Trp Asn Ile Thr Arg Gly Leu Asn Asn Thr Gly Arg
111               405                 410                 415
113   Asn Asp Thr Ile Thr Leu Pro Cys Arg Ile Lys Gln Ile Ile Asn Arg
114           420                 425                 430
116   Trp Gln Glu Val Gly Lys Ala Met Tyr Ala Pro Pro Ile Lys Gly Asn
117           435                 440                 445
119   Ile Ser Cys Ser Ser Asn Ile Thr Gly Leu Leu Leu Thr Arg Asp Gly
120       450                 455                 460
122   Gly Lys Asp Asp Asn Ser Arg Asp Gly Asn Glu Thr Phe Arg Pro Gly
123   465                 470                 475                 480
125   Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys Tyr Lys
126               485                 490                 495
128   Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys Ala Lys Arg
129           500                 505                 510
131   Arg Val Val Gln Arg Glu Glu Arg Ala Val Gly Leu Gly Ala Met Phe
132           515                 520                 525
134   Ile Gly Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser Val
135       530                 535                 540
137   Thr Leu Thr Val Gln Ala Arg Gln Leu Leu Ser Gly Ile Val Gln Gln
138   545                 550                 555                 560
140   Gln Ser Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln
141               565                 570                 575
143   Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Ile Leu Ala Val
144           580                 585                 590
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146    Glu Arg Tyr Leu Lys Asp Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser
147             595             600             605
149    Gly Lys Leu Ile Cys Thr Thr Thr Val Pro Trp Asn Ala Ser Trp Ser
150        610             615             620
152    Lys Asn Lys Thr Leu Glu Ala Ile Trp Asn Asn Met Thr Trp Met Gln
153    625             630             635             640
155    Trp Asp Lys Glu Ile Asp Asn Tyr Thr Lys Leu Ile Tyr Ser Leu Ile
156             645             650             655
158    Glu Glu Ser Gln Ile Gln Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu
159             660             665             670
161    Leu Asp Lys Trp Ala Asn Leu Trp Asn Trp Phe Asp Ile Ser Asn Trp
162        675             680             685
164    Leu Trp Tyr Ile Lys Ile Phe Ile Met Ile Val Gly Gly Leu Val Gly
165        690             695             700
167    Leu Arg Ile Val Phe Val Val Leu Ser Ile Val Asn Arg Val Arg Gln
168    705             710             715             720
170    Gly Tyr Ser Pro Leu Ser Phe Gln Thr Arg Leu Pro Ala Pro Arg Gly
171             725             730             735
173    Pro Asp Arg Pro Glu Glu Ile Glu Glu Glu Gly Gly Asp Arg Asp Arg
174             740             745             750
176    Asp Arg Ser Gly Leu Leu Val Asp Gly Phe Leu Thr Leu Ile Trp Val
177             755             760             765
179    Asp Leu Arg Ser Leu Cys Leu Phe Ser Tyr His Arg Leu Arg Asp Leu
180        770             775             780
182    Leu Leu Ile Val Thr Arg Ile Val Glu Leu Leu Gly Arg Arg Gly Trp
183    785             790             795             800
185    Glu Ile Leu Lys Tyr Trp Trp Asn Leu Leu Gln Tyr Trp Ser Gln Glu
186             805             810             815
188    Leu Lys Asn Ser Ala Val Ser Leu Phe Asn Ala Thr Ala Ile Ala Val
189             820             825             830
191    Ala Glu Gly Thr Asp Arg Val Ile Gln Val Leu Gln Arg Val Gly Arg
192             835             840             845
194    Ala Leu Leu His Ile Pro Thr Arg Ile Arg Gln Gly Leu Glu Arg Ala
195        850             855             860
197    Leu Leu
198    865
201 <210> SEQ ID NO: 2
202 <211> LENGTH: 17
203 <212> TYPE: PRT
204 <213> ORGANISM: Human immunodeficiency virus type 1
206 <220> FEATURE:
207 <223> OTHER INFORMATION: segment of R2 strain V3 domain
209 <400> SEQUENCE: 2
210    Lys Ser Ile Pro Met Gly Pro Gly Arg Ala Phe Tyr Thr Thr Gly Gln
211     1               5               10              15
213    Ile
217 <210> SEQ ID NO: 3
218 <211> LENGTH: 35
219 <212> TYPE: PRT
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Input Set : A:\5001hjus.app
Output Set: N:\CRF3\02162001\I762261.raw

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220 <213> ORGANISM: Human immunodeficiency virus type 1
222 <220> FEATURE:
223 <223> OTHER INFORMATION: R2 strain V3 domain
225 <400> SEQUENCE: 3
226     Cys Ser Arg Pro Asn Asn Asn Thr Arg Lys Ser Ile Pro Met Gly Pro
227      1               5                  10                  15
229     Gly Arg Ala Phe Tyr Thr Thr Gly Gln Ile Ile Gly Asp Ile Arg Gln
230              20                  25                  30
232     Ala His Cys
233              35
236 <210> SEQ ID NO: 4
237 <211> LENGTH: 35
238 <212> TYPE: PRT
239 <213> ORGANISM: Human immunodeficiency virus type 1
241 <220> FEATURE:
242 <223> OTHER INFORMATION: V3 domain of strain 93TH966.8
244 <400> SEQUENCE: 4
245     Cys Thr Arg Pro Ser Asn Asn Thr Arg Thr Ser Thr Thr Ile Gly Pro
246      1               5                  10                  15
248     Gly Gln Val Phe Tyr Arg Thr Gly Asp Ile Thr Gly Asn Ile Arg Lys
249              20                  25                  30
251     Ala Tyr Cys
252              35
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VERIFICATION SUMMARY                    DATE: 02/16/2001
PATENT APPLICATION:   US/09/762,261     TIME: 09:39:06
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Input Set : A:\5001hjus.app
Output Set: N:\CRF3\02162001\I762261.raw
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L:13 M:270 C: Current Application Number differs, Replaced Application Number
L:14 M:271 C: Current Filing Date differs, Replaced Current Filing Date